

NELS 21
Proceedings of the North Eastern Linguistics
Society Annual Meeting 21
1990

Kayne, R. (1989) 'Facets of Romance Past Participle Agreement', in P. Beninca (ed.) Dialect Variation and the Theory of Grammar, Foris, Dordrecht, 85-103.

Koopman, H. and D. Sportiche (1988) 'Subjects', manuscript, UCLA.

Rizzi, L. (1990) Relativized Minimality, MIT Press, Cambridge.

Sportiche, D. (1988) 'A Theory of Floating Quantifiers and its Corollaries for Constituent Structure', Linguistic Inquiry 19, 425-250.

Shlonsky, U. (1987) 'Null and Displaced Subjects', Ph.D dissertation. Distributed by the Indiana University Linguistics Club, 1989.

Constraining Lexical Accent'

Jane S. Tsay

University of Arizona

0. INTRODUCTION

The goals of this paper are to argue against the theories of exceptional stress in Halle and Vergnaud (1987) (henceforth H&V) and Hammond (1989), where exceptional stress is treated as lexical accent, and to argue for a model where exceptional stress may be assigned by the same parameters used for assigning regular stress, but with different values.

Thanks to Diana Archangeli, Andy Barss, Tom Bourgeois, Megan Crowhurst, Dick Demers, Mike Hammond, James Myers, Dick Oehrle, Curt Rice, and other members of Arizona Phonology Reading Group for helpful comments and discussions during this work. I also want to thank Nick Clements, Elan Dresher, Harry van der Hulst for contributing comments at my presentation of this paper at the conference.

Many languages have been claimed to have exceptional stress in addition to regular stress. For example, in Macedonian stress typically falls on the antepenult, a pattern that is usually analyzed as involving final syllable extrametricality, left-headed binary feet, and a right-headed word tree (H&V, Hammond 1989). However, Macedonian also has words with exceptional stress which falls on the penult or final. Hammond (1989) proposes that these words with exceptional stress have underlying lexical accents on the penult and the ultima respectively, and these lexical accents surface as main stress. H&V consider lexical accents to be line 1 asterisks present in underlying representation.

However, there are many problems with their approach. I propose instead that exceptional stress should be assigned by the same mechanism as regular stress.

This paper is organized as follows. The treatment of exceptional stress in Macedonian and Polish by H&V and Hammond (1989), which I call the accent-based theory, is given in section 1. The problems with the accent-based theory are discussed in section 2. A new proposal, which I call the analysis-based proposal, is presented in section 3. Finally, the advantages of the analysis-based theory are argued for in section 4.

1. THE ACCENT-BASED THEORY

Regular stress in Macedonian is on the antepenult, as illustrated in (1a). Exceptional stress is either on the penult (1b) or the final (1c).

(1) Macedonian -- data (Franks 1983, H&V, Hammond 1989)

a. Antepenult -- most common (regular stress)

- vodénica "mill"
- pólkovnik "colonel"
- rábota "work"

b. Penult -- less common (exceptional stress)

- literatúra "literature"
- konzumátor "consumer"

c. Final -- less common (exceptional stress)

- autobús "bus"
- citát "quotation"

H&V's analysis of regular stress assignment in Macedonian is as follows.¹

(2) Regular stress assignment in Macedonian -- (as paraphrased in Hammond 1989, following H&V's (16), p.58)

- a. The final syllable is extrametrical
- b. Build left-headed bounded feet right to left
- c. Supply heads to unheaded feet
- d. Build a right-headed word tree
- e. Supply a head to the word tree
- f. Conflation

An example of regular stress assignment is given in (3).

(3) Regular stress assignment in Macedonian (H&V)

- * * * * (2a) * * * [*] (2b) (*)(* *)[*] (2c)
- vodenicar ----> vodeni car ----> vo deni car ---->
- * * (* *) (* *)
- (*)(* *)[*] (2d) (*)(* *)[*] (2e) (*)(* *)[*]
- vo deni car ----> vo deni car ----> vo deni car
- * (* *)
- (2f) * (* *)[*]
- > vo deni car ----> vodenicar

As to the exceptional stress, H&V assigns line 1 asterisks to the "accented" elements and Hammond (1989) puts a special diacritic mark on the "accented" elements, in addition to regular stress assignment. An example of H&V's model is given in (4), where 'citát' comes with a

¹ Although Hammond (1989) differs from H&V in some ways, for example, Hammond does not use conflation, I consider them the same for my purposes with respect to the regular stress assignment. Hammond's analysis of stress assignment will not be repeated here.

- (6) Parameters (cf. H&V, Hammond 1986, 1990, Hayes 1981)
- Extrametricality -- [+ Em]/[-Em]
 - Quantity sensitivity -- QS/QI/ROB³
 - Unbounded / Bounded
 - Headedness -- [R-headed] / [L-headed]
 - Directionality -- [R->L] / [L->R]
 - Iterativity -- [+It] / [-It]

Recall that Macedonian has three stress patterns: antepenult, penult, and final. Since Macedonian is quantity-insensitive, and the stress assignment is from right to left, we can assume that words with antepenult stress have [+Em] and a left-headed binary foot, as shown in (7a). The penult stress is analyzed as having [-Em] and a left-headed binary foot, as shown in (7b). The final stress is analyzed as having [-Em] and a right-headed binary foot, as shown in (7c).

- (7) Macedonian -- QI, R --> L

- a. Stress I -- [+Em], binary, left-headed

* * * * * * * [*] * (* *) [*] ,
 vodenica --> vodeni ca --> vodeni ca --> vodenica

- b. Stress II -- [-Em], binary, left-headed

* * * * * * * * (* *) * * * (* *) *
 literatura --> litera tura --> litera tura
 ---> literatura

- c. Stress III -- [-Em], binary, right-headed

* * * * (* *) ,
 citat -----> citat ---> ci tat --> citat

Note that the differences among these three groups of words still have to be marked lexically. But instead of being marked on some particular syllable underlyingly, this lexical information is carried by the morpheme as a whole.

³ An ROB (revised obligatory-branching) foot is a kind of foot where the head must dominate an accent (Hammond 1986, 1989).

Hence this proposal solves the problems raised by the accent-based theory. First, "exceptional" stress is assigned after syllabification, just like regular stress. This solves the problem as to how to mark the accent underlyingly. Second, in this proposal, "exceptional" stress is assigned by the same metrical parameters as "regular" stress, only with different values. A diacritic is only needed to indicate which lexical item goes with which set of parameter values. Third, it accounts for the fact that "exceptional" stress falls into patterns. Fourth, there is no distinction between "regular" stress and "exceptional" stress in the grammar with respect to how they are assigned; therefore it does not raise the counting problem with respect to learnability.

In addition to solving the above problems, this proposal has another significant advantage. Namely, it can also handle cases other than "exceptional" stress where a language uses different sets of metrical parameter values to assign stress to different lexical items. Such cases cannot be handled at all in an accent-based theory. I turn to some examples in the next section.

4. CASES THAT THE ACCENT-BASED THEORY CANNOT HANDLE

4.1. English nouns vs. English verbs and adjectives

In English, nouns have final syllable extrametricality while underived verbs and adjectives do not (H&V p.230). Except for extrametricality, English nouns and English verbs/adjectives have the same stress assignment. That is, stress falls either on the first heavy syllable counting from the right edge (not counting the extrametrical syllable) or, if there is no heavy syllable, on the second light syllable from the right edge (not counting the extrametrical syllable). Some examples are given in (8), where [] mark an extrametrical syllable and heavy syllables are underlined.

- (8) a. Main Stress in English nouns (after H&V)

ˈCana[da] aˈlumi[num] aˈgen[da] aˈro[ma]

- b. Main Stress in English Adjectives and Verbs
 (after H&V)

ˈsɒlɪd əˈstɒnɪʃ əbˈsɜːd dɪˈvaɪn

- b. Stress II -- [-Em], binary, left-headed

*

* * (* *) ,

sugud --> sugud --> sugud "lice comb"

4.3. Turkish

The third case is from Turkish. In Turkish, stress is insensitive to syllable weight for ordinary words, but sensitive to syllable weight for place names and borrowed words. The switch of quantity sensitivity cannot be handled by the accent-based theory since as with English, this is not a case where some particular syllable has lexical accent. Data from Turkish (Sezer 1983, Kaisse 1985, Hammond 1986) are provided in (14) and (15).

- (14) Turkish ordinary words (Insensitive to syllable weight)

| | |
|------------|-----------------|
| tani | "know" |
| tanidik | "acquaintance" |
| tanidiklar | "acquaintances" |

- (15) Turkish place names and borrowed words (Sensitive to syllable weight)

- a. Words with a heavy penult are stressed on the penult:

| | |
|-----------|--------------------|
| Samuelson | "(Paul) Samuelson" |
| Vasinkton | "Washington" |

- b. Words with a heavy antepenult and a light penult are stressed on the antepenult:

| | |
|---------|------------------|
| Ankara | "city in Turkey" |
| penjere | "window" |

- c. Words with a light penult and a light antepenult are stressed on the penult:

| | |
|----------|-----------|
| Kenedi | "Kennedy" |
| Pitolemi | "Ptolemy" |

Under this new proposal, ordinary words in Turkish have QI, [-Em], and a right-headed binary foot, as shown in (16a), while place names and borrowed words have [+Em] and a right-headed ROB foot, as shown in (16b), with everything else being the same, i.e. R->L directionality and right-headed word tree.

- (16) Turkish -- R->L, right-headed word tree (after Hammond 1986)

- a. Ordinary words -- QI, [-Em], binary, right-headed

*

* * (* *) (* *)

tani --> tani --> tani --> tani

- b. Place names and borrowed words -- [+Em], right-headed ROB foot (the head must be heavy) (* is a heavy syllable)

(i)

*

* * * * * [*] (* *) [*]

Samuelson --> Samuelson --> Samuelson --> Samuelson

(ii)

*

* * * * * [*] (* *) [*]

Ankara --> Anka ra --> Anka ra --> Ankara

(iii)

*

* * * * * [*] * * [*] * * [*]

Kenedi -> Kene di -> Kene di -> Kene di -> Kenedi

Since the two stress patterns in Turkish differ in their sensitivity to syllable weight, there is no way that the accent-based theory can handle it.

4.4. Apparent problem

Macedonian, however, appears to pose a problem for the analysis-based theory proposed in this paper, since, unlike Aklan, words in Macedonian change stress patterns after affixation.

(17) Macedonian with affixation (H&V, Comrie 1976)

- a.
- | | |
|----------------|-----------------|
| konzumátor | "consumer" |
| konzumátor-i | "consumers" |
| konzumátor-ite | "the consumers" |
- b.
- | | |
|-----------|------------------|
| citát | "quotation" |
| citát-ot | "the quotation" |
| citát-ite | "the quotations" |

In (17a), the underived form has penult stress, but after affixation, it has antepenult stress. Similarly, in (17b), the unaffixed form has final stress, but the affixed forms have either penult or antepenult. At first glance, this seems to be a problem for my proposal. However, this problem can be solved if we assume that the lexical marking triggering different stress patterns in Macedonian is, unlike the case in Aklan, not preserved after affixation, and that after affixation there is only one stress pattern, antepenult.

Recall that there are three stress patterns in Macedonian, which I summarize in (18).

(18) Stress in Macedonian

Stress I : QI, R->L, [+Em], binary, left-headed
 Stress II : QI, R->L, [-Em], binary, left-headed
 Stress III: QI, R->L, [-Em], binary, right-headed

Morphemes may come with any one of these three stress patterns. However, after affixation, only Stress I is assigned to the derived forms, with the stress from the first cycle being respected. Thus, if we assume Stress Copy, following H&V, the stress from the first cycle (i.e. the stress that the underived form is assigned) would mark the morpheme with a line 1 asterisk, and hence affect the stress assignment in the following cycle, where affixation takes place.

Before giving the derivation, I repeat the Stress Copy Rule from H&V in (19).

(19) Stress Copy (SC) (H&V)

Copy the line 1 asterisks from the metrical planes of earlier cycles.

The derivation of "citátot" is given in (20). First, the morpheme comes with Stress III (SIII) pattern underlyingly, and gets final stress in the first cycle. Then the suffix "-ot" is added, and stress is erased, while copied as a line 1 asterisk. When assigning the stress pattern Stress I (SI) in the second cycle, this line 1 asterisk is respected. Hence we get penult stress.

(20) citát + ot --> citátot

| | | | | | |
|------------------------------------|------------|---------------|----------|--|---|
| | * | | * | | * |
| * * SIII (* *) aff. * * * SC * * * | | | | | |
| citát ---> | citát ---> | citát-ot ---> | citát-ot | | |

| | | | |
|-------------|----------|--------|---------|
| | * | | * |
| S I *(*)[*] | | | |
| -----> | citát-ot | -----> | citátot |

4.5. Unsolved problem

There is, however, at least one case that remains unsolved. That is, in some languages, there seem to be morphemes that always attract stress. For example, in Aklan, the morphemes 'ga' and 'ka' always attract stress (secondary stress), as shown in (21).

(21) Aklan (Hayes 1981, p.22)

| | |
|-----------------------|------------------------|
| na- <u>ga</u> -hadluk | "frighten-actor-pres." |
| <u>ka</u> -hiluN-un | "state of drunkenness" |

At this point, I do not have an answer for this, except that the vowels in these morphemes might have some special properties.

5. CONCLUSIONS

In this paper, I have argued that by changing the values of the parameters, we can account for languages having more than one stress pattern. In other words, this proposal expands metrical theory by covering cases that used to be treated as exceptions (e.g. the penult or

JANE S. TSAY

364

final stress in Macedonian), and cases like English, Aklan, and Turkish, where two or more stress patterns in a language can not be handled by marking lexical accent. This is schematized in (22). By "other cases", I mean English, Aklan, and Turkish.

(22)

| | "regular" stress | "exceptional" stress | other cases |
|-------------------------|---------------------------------|--------------------------------------|-------------|
| Accent-based Theory | assigned by metrical parameters | lexical accent & metrical parameters | ??? |
| Analysis-based Proposal | assigned by metrical parameters | | |

REFERENCES

Chai, N. (1971), A Grammar of Aklan, Doctoral dissertation, University of Pennsylvania, Philadelphia.

Comrie, B. (1976), "Irregular stress in Polish and Macedonian", International Review of Slavic Linguistics, v. 1, no. 2-3, 227-240.

Franks, S. (1983), "Stress in Polish and Macedonian", ms, MIT.

Halle, M. & J.-R. Vergnaud (1987), An essay on stress, Cambridge, Mass.:MIT Press.

Hammond, M. (1986), "The obligatory-branching parameter in metrical theory", Natural Language and Linguistic Theory, 4, 185-228.

--- (1989), "Lexical stresses in Macedonian and Polish", Phonology 6, 19-38.

--- (1990), Metrical Theory and Learnability, ms, University of Arizona.

Hayes, B. (1981), A metrical theory of stress, PhD dissertation, MIT.

--- (1989), "Compensatory Lengthening in Moraic Phonology", Linguistic Inquiry, 20.2, 253-306.

Itô, J. (1986), Syllable Theory in Prosodic Phonology, Doctoral dissertation, University of Massachusetts at Amherst.

Kaisse, E. M. (1985), "Some theoretical consequences of stress rules in Turkish", Papers in 21st Annual Regional Meeting of the Chicago Linguistic Society, 199-209.

Levin, J. (1985), A Metrical Theory of Syllabicity, Doctoral dissertation, MIT.

Sezer, E. (1983) "On non-final stress in Turkish", Journal of Turkish Studies 5, 61-69.

Wexler, K. & P. W. Culicover, (1980), Formal Principles of Language Acquisition. MIT Press.